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ECOSYSTEM RESTORATION IN THE ASHLAND RESOURCE AREA

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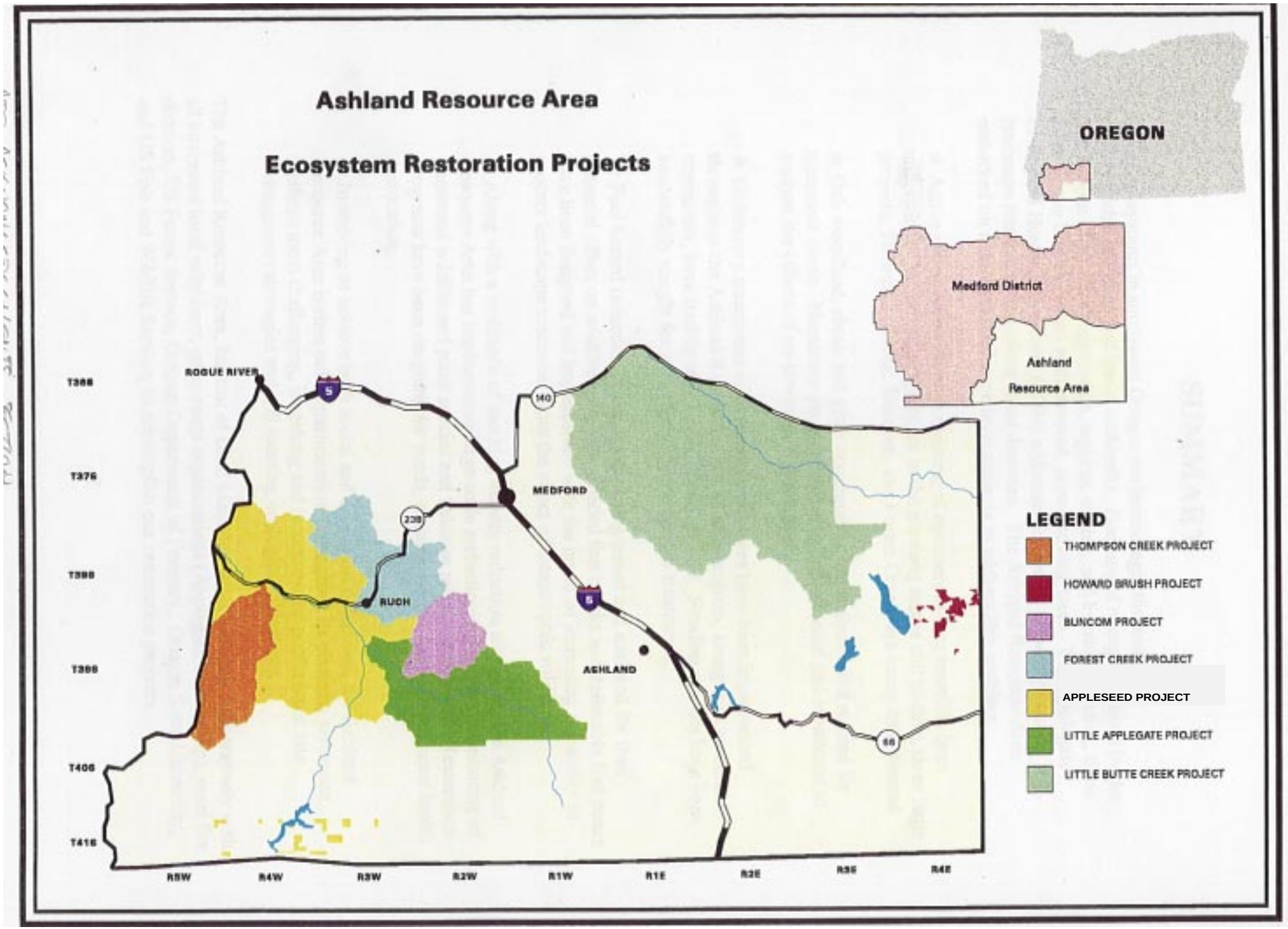

Ashland Resource Area
Ecosystem Restoration Projects
OREGON
Medford District
Ashland
Resource Area
ROGUE RIVER
MEDFORD
RUCH
ASHLAND
T38S
T37S
T39S
T39S
T40S
T41S
R5W
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
LEGEND
THOMPSON CREEK PROJECT
HOWARD BRUSH PROJECT
BUNCOM PROJECT
FOREST CREEK PROJECT
APPLESEED PROJECT
LITTLE APPLEGATE PROJECT
LITTLE BUTTE CREEK PROJECT

SUMMARY

Forest ecosystems in southwest Oregon are increasingly threatened by uncontrollable wildfires and insect outbreaks. These forests have become dense with stressed, slow-growing trees because of changes induced by the past actions of wildfire suppression, logging, mining, and livestock grazing. The "Applegate Ecological Health Assessment (1994)" identified a need to actively pursue landscape treatments to reduce stand densities. The Ashland Resource Area embarked on numerous landscape level projects to address this problem.

- Active management through thinning of commercial-size trees has been undertaken. Numerous projects are in the planning stages and to date, three large projects, Thompson Creek, Buncom, and Forest Creek, are being implemented.

- Oak woodland, shrub and grass communities are analyzed and studied for treatment (thinning) needs. Numerous projects are being implemented and monitored to analyze the effects of on-the-ground treatments.

- Understory treatments of noncommercial trees have been implemented throughout the Ashland Resource Area. In the past, these projects, along with woodland treatments, have been difficult to fund. Funding sources have been successfully procured for current and future treatments.

- Fuel hazard reduction strategies are being tested and analyzed for their potential effect on wildfire behavior. Shaded fuel breaks and defensible fuel zones have been designed and implemented with the intent of increasing our ability to protect landscape resources from the effect of catastrophic wildfires.

- Large-scale archeological surveys, monitoring (wildlife, fisheries, plant and water), and restoration (roads, streams, native species, and forest health) programs have been implemented by the Ashland Resource Area.

- In striving to achieve both social and ecological objectives, the Ashland Resource Area invites public participation throughout its planning processes. Perhaps most challenging, is seeking and incorporating public input into management strategies and still meeting ecological objectives.

The Ashland Resource Area, Bureau of Land Management is working cooperatively with all interested local neighbors, grass roots organizations (e.g., Applegate Partnership), rural fire districts, US Forest Service, Oregon Department of Forestry, Oregon State University, and US Fish and Wildlife Service, to accomplish our management, such as monitoring and restoration projects.

INTRODUCTION

In 1994, the Bureau of Land Management (BLM) and the Forest Service initiated a comprehensive ecosystem restoration effort in southwest Oregon. A group of Oregon State University and government scientists from throughout the region were assembled to closely examine and evaluate the current ecological situation and provide recommendations on how to proceed.

This endeavor involved a rigorous scientific assessment of both the forest and aquatic ecosystems (*Applegate Adaptive Management Area Ecosystems Health Assessment*). Emerging from this effort were recommendations and priorities for ecological restoration.

Scientists agree that in the absence of natural disturbances, primarily wildfires, most forests in southwest Oregon are developing differently than prior to Euro-American settlement. As a result, the habitats for many important species are rapidly diminishing. Also, the forests are becoming increasingly dense making them susceptible to catastrophic fire, insect attack, and disease. Ecologists refer to this condition as ecological instability. The resource area's goal is to restore ecological stability, one watershed at a time.

Improvements are accomplished by utilizing techniques, such as controlled burning, tree planting, thinning, as well as removing deteriorated roads, enhancing stream protection, managing oak/woodlands, restoring native grasses and tree species.

The *Ecosystem Health Assessment* Social Section states: "Ecosystem health also includes the promotion of social and economic well-being of neighboring human communities consistent with such health. Human ecosystem management implies the balance between human and biophysical resources maintains the resilience, diversity, and productivity." The Ashland Resource Area continues to incorporate the social aspect into all ecosystem restoration work.

PRINCIPLES OF ECOSYSTEM RESTORATION

In the natural environment, ecological processes, such as wind, insects, disease, drought and lightning-caused fires, regularly sculpted the native forests creating a landscape that is a reflection of its past environment. Here in southwest Oregon, frequent lightning-sparked fires were the primary factor in shaping the forest.

It is important to recognize what natural processes are involved in maintaining healthy forests. Forest ecosystems have been evolving for thousands of years, thus the composition, structure, and ecological processes of the forests are essentially a product of their ongoing physical environment. Not only did natural disturbances play a role in shaping the historical ecosystem but Native Americans of this area interacted with the ecosystem, shaping the landscape to promote the resources

important to them. The use of fire by Native Americans to enhance the production of preferred plants and animals is well documented.

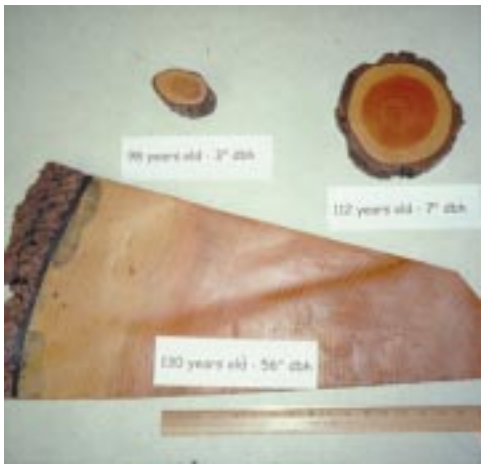
Historically, fires occurred more frequently than most people realize. For example, recent research data obtained from a single 20-acre old-growth stand in the Little Applegate Watershed indicated that 28 fires occurred between 1716 and 1902. However, these fires were of low intensity as evidenced by the trees that survived. Fires meandered throughout the forest year after year, reshaping the forest with every pass. In time, only ecological processes and native species able to persist in the presence of frequent fire reproduced, creating forest ecosystems that are not only adapted to frequent fire but were dependent upon it.

As southwest Oregon became colonized by Euro-American settlers, many fires were suppressed and by 1902, the active suppression of all fires became policy. As a result of fire suppression, forests that once burned regularly are now abruptly changing and many of the ecological processes that sustained their productivity and resiliency are being dismantled. Many forests have become unstable, rendering them vulnerable to insect infestations, disease, and catastrophic fire.

The basic principle of ecosystem restoration is to identify the natural processes that sustain healthy forests and then manage the existing resources utilizing these natural process. When used appropriately, active management practices, such as harvesting, thinning, and prescribed fire, can often be utilized to mimic important natural disturbances.

THE CURRENT SITUATION

Since active fire suppression became policy, forest densities have increased at an uncontrolled rate. Many small, slow growing trees are produced rather than fewer, large, fast growing trees. This decrease in tree vigor and growth has contributed to an overall decline in forest health. Trees facing such tough competition often become weakened and are highly susceptible to insect epidemics and harmful forest pathogens.



Historically, frequent low intensity fires served as a thinning mechanism, thereby regulating the density of the forest. Trees growing at lower densities tend to be more resilient and vigorous, eventually becoming large and tall, enhancing vertical and structural diversity of the forest. Many organisms that thrive in the more structurally diverse forest, provided by large trees, are listed as threatened and “at risk” species.

Big trees and small trees can be the same age.

Open stand of older ponderosa pine in the foreground, encroaching white fir in the background

Ponderosa pine trees previously thrived in fire prone environments. With the absence of frequent fire pine stands are quickly out competed by the more shade tolerant fir species. As a result, this valuable tree species is rapidly declining.

Densely grown 100 year old Douglas-fir

Historically, ground fuel was routinely removed by frequent fire. Recently, through fire suppression, ground fuel has been permitted to accumulate to record high levels, creating the potential for extremely intense fires. High-intensity fires such as those likely now, are damaging to soils and often completely consume the forests. Today, the majority of the forests in southwest Oregon are at risk of large, destructive, stand replacement wildfires.

Hull Mountain Fire, Medford, OR - 1994

Stream side vegetation (riparian) is usually consumed when fires burn with extreme intensity. Historically, riparian areas were often spared by low-intensity fires. Riparian vegetation is a critical ecosystem component that reduces soil erosion and provides stream shading and wildlife habitat.

The oak woodlands have encountered many of the same problems as conifer forests. Their range has been greatly reduced through clearing for farmland and many hardwoods have been crowded out by the unabated advance of conifers and brush species that were once eliminated by frequent fires.

Oak Woodland with brush encroachment as a result of wildfire exclusion

LANDSCAPE SCALE PROJECT PLANNING

Ecosystem restoration strategies are being developed at the landscape scale for projects covering several thousand acres. Treatment objectives for forest health, wildlife enhancement, aquatic habitat, and fire hazard reduction are incorporated into project plans. Project planning involves understanding broad scale interrelationships for entire landscapes and adjacent watersheds. Road systems, streams, forest, and non-forest plant communities, and wildlife habitat are all analyzed and assessed for potential improvements. The Ashland Resource Area is taking a comprehensive approach to ecosystem restoration implementation. Described below are examples of current restoration projects.

Watershed Restoration

Watershed restoration is a component of the Northwest Forest Plan's Aquatic Conservation Strategy. This comprehensive, long-term program aims to restore watershed health and aquatic ecosystems, including the habitats supporting fish and other aquatic and riparian-dependent organisms. Watershed analysis is used to identify areas of greatest benefit-to-cost relationships for restoration opportunities and greatest likelihood of success. The most important components of a watershed restoration program are control and prevention of road-related runoff and sediment production, restoration of the conditions of riparian vegetation, and restoration of in-stream complexity.

Landscape projects in the Ashland Resource Area include road treatments. These road treatments range from decommissioning (closing and stabilizing) to upgrades

(improving road drainage systems, adding surface rock, reconstructing stream crossings, etc.).

Silvicultural treatments designed to restore large conifers and reduce fire hazard in Riparian Reserves are incorporated into Ashland Resource Area landscape projects. Riparian Reserves are designated in the Northwest Forest Plan as lands along streams and stable and potentially unstable areas where special standards and guidelines direct land use. Riparian-dependent and stream resources receive primary emphasis in these portions of the landscape..

Young Forest Restoration

Young tree stands are the forests of the future. In the absence of natural fire or silvicultural treatment, most stands will not develop into healthy forests. Recent research has shown that most are becoming homogenous stands of overly dense, fire prone Douglas-fir which curtails the development of species and habitat diversity.

The Ashland Resource Area's young tree stand improvement initiative currently applies restoration techniques to thousands of acres of young stands annually. Treatment objectives include the reduction of "ladder fuels" in the understory thus preventing spread of fire into the tree tops and avoiding an intensive crown fire and the promotion of greater species and habitat diversity.

Fire Hazard Reduction

Thinning and logging can create a considerable amount of slash and woody material that can create a substantial short-term fire hazard. All thinning treatments are evaluated by the Ashland Resource Area's fire specialists to determine the potential hazard. A fire hazard reduction plan is then developed. Slash can be utilized, chipped, or burned. The Ashland Resource Area is treating thousands of acres annually throughout southwest Oregon.

In addition, the Ashland Resource Area foresters are seeking new cost effective approaches to treating debris. A low ground impact machine called a "slash buster" is currently being tested. The slash buster chops the slash into small pieces and then disperses the wood pieces across the forest floor, both to reduce erosion and enhance productivity.

Species Restoration

Ponderosa pine is a valuable component in most southwest Oregon stands because it is well suited for a dry, hot climate. Many forests are losing ponderosa pine as a result of overcrowding by Douglas-fir. Small openings called "group selections", varying in size from 1/4 to 3/4 acre, are being created to encourage sun-loving ponderosa pine germination and growth. Also, an aggressive program to restore the vigor and resiliency of large pine trees, by reducing the density around faltering trees, has been undertaken. Over 1,000 pine trees have been treated through 1998.

Shaded Fuel Breaks

The ability to confine and control wildfire is improved by shaded fuel breaks. Usually along ridge tops, fuel breaks interrupt the continuity of fuel so that wildfire can be more effectively contained. Although most of the large trees are retained to provide shade, smaller trees and ground fuels are removed. During 1997 the Ashland Resource Area has created 14 miles of shaded fuel breaks.

The Thompson Creek shaded fuel breaks, completed in 1997, generated a lot of public comment. The main concern was their visual impact; the Thompson Creek fuel breaks stand out very prominently on the landscape. Currently efforts are under way to modify these prescriptions to accomplish our fire management objectives while having less visual impact on the landscape.

Oak Woodland and Shrub Community Restoration

A high priority is the restoration of oak woodlands and shrub lands to a fire-safe and healthy condition by removing encroaching conifer and brush species. Reducing the density among competing oaks greatly enhances the vigor of the residual trees. This promotes the longevity and stability of valuable plant communities. Native grasses that have been lost as a result of over shading are then reintroduced, which in turn reduces the abundance of weeds and non-native plants. Over 600 acres of oak woodlands were treated in 1997 and many more are planned annually.

Commercial Forest Harvesting

The Ashland Resource Area has implemented commercial thinning sales on over 8,000 acres. Since 1996 approximately 300,000 trees with an average diameter of 13" have been harvested. Removal guidelines have stressed “thinning from below”, meaning that the biggest and healthiest (dominant) trees are left and the smaller suppressed (co-dominant) trees are removed.

These sales are very expensive to operate, but we have experimented with new sale preparation and contracting procedures to minimize the costs. A variety of harvesting methods have been used to minimize the need for additional roads. Although these expensive projects necessitate the need for large sales to maximize operational efficiencies, the Ashland Resource Area has sold numerous small sales. Several smaller volume sales are prepared annually to provide opportunities for smaller operators to find work within the resource area. To date, all of these sales have sold to local industries and/or operators and have produced jobs for the community.

Douglas-fir stand thinned in 1996

Outreach and Public Involvement

The residents in the rural/urban forested interface are a combination of diverse publics. They tend to be educated and have strong environmental values with little land management experience in the southern Oregon ecosystem. The Ashland Area Manager has directed resource area staff "to meet with anyone, anytime, anywhere" to communicate forest management issues. As a result, a diverse public outreach program, that includes neighborhood meetings, field tours, and attending Applegate Partnership meetings. Coordination with the Forest Service, the Applegate River Watershed Council, and the Rogue Institute for Ecology and Economy is also a part of the resource area's public involvement program.

The International Model Forests Network includes the Applegate Adaptive Management Area. This network was originated by the Canadian government and directly involves Russia, Mexico, and Malaysia.

Applegate Public Meeting in the Field

The resource area has prepared, awarded, and executed numerous service contracts associated with ecosystem restoration. Utilizing the local workforce, these contracts include: riparian reserve boundary marking, timber marking, and global positioning (GPS) traverse of forest management units, and surveys (owl, salamander, threatened and endangered plants, cultural/archeological).

MONITORING AND RESEARCH

The adaptive management concept provides an extraordinary opportunity for advancing our knowledge of both ecosystem and social interactions. The Applegate Adaptive Management Area is a land allocation wherein experimenting, learning and adapting is the primary intent while maintaining an operational project program. Adaptive management is the incorporation of newly learned information, predominately acquired as the result of research and monitoring, into future projects on an ongoing basis. It provides a process to include information relative to slowly evolving social objectives, into our understanding of the desired future landscape. For this reason all on-the-ground projects have clearly defined objectives and are monitored. This is accomplished by the Ashland Resource Area through establishment of a technically-oriented research and monitoring program staffed with scientists closely tracking the success of management for ecological trends. Coordination with other agencies, universities, and state and private organizations is imperative. Pre-and post treatment data is collected and evaluated. Where appropriate, adjustments, based on monitoring results are incorporated into future projects. Currently, the Ashland Resource Area has ongoing research and monitoring

efforts that include: forest health and tree vigor; species restoration; tree growth; old-growth forest habitat development, threatened wildlife species; fish habitat; water quality and quantity; noxious weeds; rare plants; fire history; fire hazard; and forest insects and diseases.

THE FUTURE

The Ashland Resource Area will continue to adapt and improve as the results of our ecosystem restoration efforts become apparent. The resource area team is committed to using the best science combined with public involvement opportunities to do the job. Ecosystem restoration projects are being planned, implemented, and monitored throughout the Ashland Resource Area and will be on-going for many years in the future.

The Medford District is evaluating the District Resource Management Plan to ensure that the assumptions and decisions that were made are being validated through implementation. The Medford District address is 3040 Biddle Rd., Medford, OR 97504. For Medford District issues or questions contact Jim McConnell, District Environmental Coordinator at (541)770-2402.

The Ashland Resource Area welcomes all comments or concerns to help plan future ecosystem restoration efforts. The Ashland Resource Area Manager is Richard J. Drehobl. For Ashland Resource Area issues or questions contact Bill Yocum, Area Environmental Coordinator at (541) 770-2384 or Steve Armitage, Forest Manager at (541) 770-2333.

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interest of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

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